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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,508	07/05/2001	Muralidharan S. Kodalam	Kodialam 15-17	9925
46850	7590	01/10/2005	EXAMINER	
STEVE MENDELSON MENDELSON & ASSOCIATES, P.C. 1515 MARKET STREET SUITE 715 PHILADELPHIA, PA 19102			BHANDARI, PUNEET	
			ART UNIT	PAPER NUMBER
			2666	
DATE MAILED: 01/10/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/899,508	KODIALAM ET AL.	
	Examiner	Art Unit	
	Puneet Bhandari	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 07/06/2000.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-40 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-11, 13, 18-30 and 37-40 is/are rejected.
 7) Claim(s) 12, 14-17 and 31-36 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because abstract exceeds 150 word limit. Correction is required. See MPEP § 608.01(b).
3. The disclosure is objected to because of the following informalities:

Line 24, page 6 the correct range of nodes is from 301 through 312 not 313 as disclosed.

Column 1 in table 2 specifies a primary path with only single node as known in art a path has two end point (nodes). Applicant is requested to correct the title for column 1, in table 2 or specify another node.

Lines 18-24. page 26 specifies method of sharing capacity on a backup link using inter-demand sharing and intra-demand sharing. Applicant is requested to redefine inter-demand and intra-demand sharing in a clear and concise manner so that a person with common skill in the art could interpret it easily.

Appropriate correction is required.

Claim Objections

4. Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 13 fails to further limit claim 9 by failing to add another limitation to the parent claim (9).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,5-7,9-11&13 are rejected under 35 U.S.C. 103(a) as being unpatentable over disclosed summary of invention and in further view of prior art (background of Invention) admitted by Joshi (US 5,317,566).

Fig. 1 of Joshi (US 5,317,566) teaches a method of routing data through a network having plurality of nodes interconnected by plurality of links represented by a graph. The method of assigning weight to link and defining a backup path is disclosed by Joshi (US 5,317,566) in the summary of invention "*method of assigning cost to a link based on bandwidth width available*" (column 2, lines 34-40) and "*calculating alternate routes*" (column 2, lines 54-56). Joshi (US 5,317,566) fails to disclose in invention receiving a path request for routing the data between a source node and a destination node in the network based on demand, reversing the links in the graph to generate path

from the destination node to nodes along reverse path to the source node and performing shortest-path computations for portions of the reverse paths to generate weights for potential active-path links is anticipated

Joshi (US 5,317,566) also teaches in (background of invention) prior art:

Receiving a path request for routing the data between a source node and a destination node in the network based on demand is anticipated by "*When a route is needed for transmitting a message to a particular destination node*" disclosed in column 01, lines 38-40.

Reversing the links in the graph to generate path from the destination node to nodes along reverse path to the source node is anticipated by "*route is determined by tracing the distance from the destination node to the source node*" disclosed in the column 01, lines 40-42.

Performing shortest-path computations for portions of the reverse paths to generate weights for potential active-path links is anticipated "*SPF algorithm determines the route with the shortest distance*" disclosed in column 1, line 40.

At the time invention was made, it would have been obvious to a person in ordinary skill in the art to enhance the routing capabilities of the nodes and assigning backup link by adding the new functionalities over the prior art of invention as indicated by Joshi (US 5,317,566).

One of ordinary skill in art would have been motivated to do this to enhance both speed and reliability in route selection process in a multiple node distributed digital signal communication network (column 1, lines 54-60).

Regarding claim 2, step of routing the data using the active path is anticipated by "*method of selecting the least cost route from originating node to the destination node*" disclosed in column 1, lines 64-66.

Regarding claim 3, step of routing data through one of the defined backup path in case of a failure in active path is anticipated by "*if the primary route is not functional establishing the alternate route between source and destination*" disclosed in column 3, lines 17-23.

Regarding claim 5, step of selecting each link to generate a backup path to back up for failure of a single link is anticipated by "*if the primary route (link) is not functional establishing the alternate route (link) between source and destination*" disclosed in column 3, lines 17-23.

Regarding claim 6, step of selecting each link to generate a backup path to back up for failure of a single element is anticipated by "*if the primary route (link) is not functional (due to link or node failure) establishing the alternate route (link) between source and destination*" disclosed in column 3, lines 17-23.

Regarding claim 7, step of selecting each link to generate a backup path to backup a failure of each node in active path and failure of last link in active path is anticipated by "*if the primary route (link) is not functional (due to link or node failure) establishing the alternate route (link) between source and destination*" disclosed in column 3, lines 17-23.

Regarding claim 9&13, generating the usage cost based on either complete, partial, or minimal network information is anticipated by "*least cost calculations are based upon cost of using specific link*" as disclosed in (column 2, lines 33-35).

Regarding claim 10, wherein step weight each link by generating a sum usage cost for each backup link is anticipated by "*method of calculating cost for an alternate route*" as disclosed in column 2, lines 54-60, based on number of backup paths for which the back-uplink is employed to backup an active path is anticipated by "*route cost for a path may be calculated by taking into account link bandwidth*" as disclosed in column 2, lines 35-40.

Regarding claim 11, wherein step weight each link by generating a sum usage cost for each backup link is anticipated by "*method of calculating cost for an alternate route*" as disclosed in column 2, lines 54-60, based on number of demands for which the back-uplink is employed to backup an active path is anticipated by "*route cost for a path may be calculated by taking into account link bandwidth*" as disclosed in column 2, lines 35-40.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Iwata (6,026,077). Joshi (US 5,317,566) teaches all the limitations of claim 4 (see rejection for claim 1 above) except Joshi (US 5,317,566) does not expressly disclose; each node in the active path other than the source and destination has a defined backup paths in response to a failure in the active path. Iwata (6,026,077) discloses a communication network that has an alternate path for each node besides source and destination node (see column 1, lines 64-67). At the time

invention was made, it would have been obvious to a person in ordinary skill in the art to enhance communication network of Joshi (US 5,317,566) by adding additional functionalities of Iwata (6,026,077). One of ordinary skill in art would have been motivated to do for the purpose of providing a failure restoration system that is capable of selecting an alternate path (column1, lines 60-64 of Iwata (6,026,077)).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Iwata (6,026,077). Joshi (US 5,317,566) teaches all the limitations of claim 8 (see rejection for claim 7 above) except Joshi (US 5,317,566) does not expressly disclose; step of selecting each link to generate a backup for failure of each node by generating a backup link for each link incident on the failed node. Iwata (6,026,077) discloses a communication network with a functionality of generating a backup link for each link incident on failed node (Fig.1). At the time invention was made, it would have been obvious to a person in ordinary skill in the art to enhance communication network of Joshi (US 5,317,566) by adding additional functionalities of Iwata (6,026,077). One of ordinary skill in art would have been motivated to do for the purpose of providing a failure restoration system that is capable of selecting an alternate path (column1, lines 60-64 of Iwata (6,026,077)).

8. Claims 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) teaches all the limitations of claim 18 (see rejection for claim 1 above) except Joshi (US 5,317,566) does not expressly disclose a route server with a processor coupled to a plurality of nodes or plurality of links in a packet network. Hsu (US 6,363,319) discloses

a processor with route server (Fig-1) coupled to a plurality of nodes or plurality of links in a packet network. At the time invention was made, it would have been obvious to a person in ordinary skill in the art to add a route server with a processor coupled to a plurality of nodes or plurality of links in a packet network as disclosed by Hsu (US 6,363,319) to the packet network of Joshi (US 5,317,566). One of ordinary skill in art would have been motivated to do this to provide increased traffic efficiency by taking into account traffic requirements in route selection (see column 1, lines 60-63).

9. Claims **19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) teaches all the limitations of claim 19 (see rejection for claim 1 above) except Joshi (US 5,317,566) does not expressly disclose nodes with a processor coupled to plurality of links in a packet network. Hsu (US 6,363,319) discloses a processor with nodes (Fig-2) coupled to a plurality of nodes or plurality of links in a packet network. At the time invention was made, it would have been obvious to a person in ordinary skill in the art to add nodes with a processor coupled to a plurality of links in a packet network as disclosed by Hsu (US 6,363,319) to the packet network of Joshi (US 5,317,566). One of ordinary skill in art would have been motivated to do this to provide increased traffic efficiency by taking into account traffic requirements in route selection (see column 1, lines 60-63).

10. Claims **20,24-26&28-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over disclosed summary of invention and in further view of prior art (background of Invention) admitted by Joshi (US 5,317,566).

Fig. 1 of Joshi (US 5,317,566) teaches apparatus for routing data through a network having plurality of nodes interconnected by plurality of links represented by a graph.

A second processor module performing the shortest-path computations for the portions of the reverse path is to generate weights for potential active path links, each weight of a reverse path based on a number of reverse path in which link is included is disclosed by Joshi (US 5,317,566) in the summary of invention "*method of assigning cost to a link based on bandwidth width available*" (column 2, lines 34-40) and each link in active path had a defined backup is anticipated by "*calculating alternate routes*" (column 2, lines 54-56).

Joshi (US 5,317,566) discloses in prior art (background of Invention):

A network-signaling module that receives a path request for routing the data between a source node and a destination node based on a demand is anticipated by "*When a route is needed for transmitting a message to a particular destination node*" disclosed in column 01, lines 38-40.

A first processor module coupled to the network signaling module, that reverse the links in the graph to generate path from destination node to nodes along reverse paths to the source node is anticipated by "*route is determined by tracing the distance from the destination node to the source node*" disclosed in the column 01, lines 40-42.

At the time invention was made, it would have been obvious to a person in ordinary skill in the art to enhance the routing capabilities of the nodes and assigning

backup link by adding the new functionalities over the prior art of invention as indicated by Joshi (US 5,317,566).

One of ordinary skill in art would have been motivated to do this to enhance both speed and reliability in route selection process in a multiple node distributed digital signal communication network (column 1, lines 54-60).

Regarding claim 24, wherein second module selects each link to generate a backup path to back up for failure of a single link is anticipated by "*if the primary route (link) is not functional establishing the alternate route (link) between source and destination*" disclosed in column 3, lines 17-23.

Regarding claim 25, wherein second module selects each link to generate a backup path to back up for failure of a single element is anticipated by "*if the primary route (link) is not functional (due to link or node failure) establishing the alternate route (link) between source and destination*" disclosed in column 3, lines 17-23.

Regarding claim 26, wherein second module selects each link to generate a backup path to backup a failure of each node in active path and failure of last link in active path is anticipated by "*if the primary route (link) is not functional (due to link or node failure) establishing the alternate route (link) between source and destination*" disclosed in column 3, lines 17-23.

Regarding claim 28, generating the usage cost based on either complete, partial, or minimal network information is anticipated by "*least cost calculations are based upon cost of using specific link*" as disclosed in (column 2, lines 33-35).

Regarding claim 29, wherein step weight each link by generating a sum usage cost for each backup link is anticipated by “*method of calculating cost for an alternate route*” as disclosed in column 2, lines 54-60, based on number of backup paths for which the back-uplink is employed to backup an active path is anticipated by “*route cost for a path may be calculated by taking into account link bandwidth*” as disclosed in column 2, lines 35-40.

Regarding claim 30, wherein step weight each link by generating a sum usage cost for each backup link is anticipated by “*method of calculating cost for an alternate route*” as disclosed in column 2, lines 54-60, based on number of demands for which the back-uplink is employed to backup an active path is anticipated by “*route cost for a path may be calculated by taking into account link bandwidth*” as disclosed in column 2, lines 35-40.

11. Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) teaches all the limitation of claims 21 (see rejection for claim 20 above) except Joshi (US 5,317,566) fail to disclose a route server. Hsu (US 6,363,319) discloses a central server for route selection (refer Fig.1 and column 3, lines 45-40) and a processor with route server (Fig.1). At the time invention was made, it would have been obvious to a person in ordinary skill in the art to modify communication network of Joshi (US 5,317,566) and Iwata (6,026,077) by adding additional functionalities of central sever for route selection. One of ordinary skill in art would have been motivated to do this to

provide increased traffic efficiency by taking into account traffic requirements in route selection (see column 1, lines 60-63).

12. Claims 22, is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566), and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) teaches all the limitation of claims (see rejection for claim 21 above) except Joshi (US 5,317,566) fail to disclose router routes the data through one of the defined backup path in response to a failure in an active path. Hsu (US 6,363,319) discloses nodes with failure detection capabilities (Fig.2). At the time invention was made, it would have been obvious to a person in ordinary skill in the art to modify communication network of Joshi (US 5,317,566) by adding additional functionalities of router routing the data through one of the defined backup path in response to a failure in an active path disclosed by Hsu (US 6,363,319). One of ordinary skill in art would have been motivated to do this to provide increased traffic efficiency by taking into account traffic requirements in route selection (see column 1, lines 60-63).

13. Claims 23, is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) as applied to claim 20 above, and further in view of Iwata (6,026,077). Joshi (US 5,317,566) teaches all the limitations of claim 23 (see rejection for claim 20 above) except Joshi (US 5,317,566) wherein each node in the active path other than the source and destination has a defined backup paths in response to a failure in the active path and each link on a failed node has a backup path. Iwata (6,026,077) discloses a failure restoration system that has an alternate path for each node besides source and destination node (see column 1, lines 64-67). At the time invention was made, it would

have been obvious to a person in ordinary skill in the art to enhance communication network system of Joshi (US 5,317,566) by adding additional functionalities of Iwata (6,026,077). One of ordinary skill in art would have been motivated to do for the purpose of providing a communication network that is capable of selecting an alternate path (column1, lines 60-64 of Iwata (6,026,077)).

14. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Iwata (6,026,077). Joshi (US 5,317,566) teaches all the limitations of claim 27 (see rejection for claim 26 above) except Joshi (US 5,317,566) does not expressly disclose; wherein second module selects each link to generate a backup for failure of each node by generating a backup link for each link incident on the failed node. Iwata (6,026,077) discloses a communication network with a functionality of generating a backup link for each link incident on failed node (Fig.1). At the time invention was made, it would have been obvious to a person in ordinary skill in the art to enhance communication network of Joshi (US 5,317,566) by adding additional functionalities of Iwata (6,026,077). One of ordinary skill in art would have been motivated to do for the purpose of providing a failure restoration system that is capable of selecting an alternate path (column1, lines 60-64 of Iwata (6,026,077)).

15. Claims 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) teaches all the limitation of claim 37 (see rejection for claim 20 above) except Joshi (US 5,317,566) fail to disclose a route server with a processor coupled to a plurality of nodes or links in a packet network and MPLS network. Hsu (US 6,363,319) discloses a

processor with route server (Fig.1). At the time invention was made, it would have been obvious to a person in ordinary skill in the art to modify communication network of Joshi (US 5,317,566) by adding additional functionalities of a processor with route server as disclosed by Hsu (US 6,363,319). One of ordinary skill in art would have been motivated to do this to provide increased traffic efficiency by taking into account traffic requirements in route selection (see column 1, lines 60-63).

16. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) teaches all the limitation of claims 38 (see rejection for claim 20 above) except Joshi (US 5,317,566) fail to disclose nodes with a processor coupled to a plurality of nodes or a polarity of links in a packet network. Hsu (US 6,363,319) discloses nodes (Fig.2) coupled to a plurality of links in a packet network. At the time invention was made, it would have been obvious to a person in ordinary skill in the art to modify communication network of Joshi (US 5,317,566) by adding additional functionalities a node in network as disclosed by Hsu (US 6,363,319). One of ordinary skill in art would have been motivated to do this to provide increased traffic efficiency by taking into account traffic requirements in route selection (see column 1, lines 60-63).

17. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) teaches all the limitation of claims 39 (see rejection for claim 20 above) except Joshi (US 5,317,566) fail to disclose MPLS network. Hsu (US 6,363,319) discloses MPLS network (column2, lines 66-67 & column 3, lines 1-3). At the time invention was made, it

would have been obvious to a person in ordinary skill in the art to modify communication network of Joshi (US 5,317,566) and Iwata (6,026,077) by adding additional functionalities of MPLS network as disclosed by Hsu (US 6,363,319). One of ordinary skill in art would have been motivated to do this to provide increased traffic efficiency by taking into account traffic requirements in route selection (see column 1, lines 60-63).

18. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi (US 5,317,566) in view of Iwata (US 6,026,077) as applied to claim 20 above, and further in view of Hsu (US 6,363,319). Joshi (US 5,317,566) and Iwata (US 6,026,077) teaches all the limitation of claim 40 (see rejection for claim 20 above) except Joshi (US 5,317,566) and Iwata (US 6,026,077) fail to disclose a computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to implement a method for routing the data through a network having plurality of nodes interconnected by plurality of links represented by graph. Hsu (US 6,363,319) discloses a central server for route selection (refer Fig.1 and column 3, lines 45-40). At the time invention was made, it would have been obvious to a person in ordinary skill in the art to modify digital communication network of Joshi (US 5,317,566) and Iwata (6,026,077) by adding additional functionalities of a computer-readable medium of Hsu (US 6,363,319). One of ordinary skill in art would have been motivated to do for the purpose of providing route selection decisions (see column 3, lines 45-50).

Allowable Subject Matter

19. Claims 12,14-17 & 31-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Puneet Bhandari whose telephone number is 571-272-2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Puneet Bhandari
Examiner
Art Unit 2666



CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600